A Search for Warm Dust in the Habitable Zones Around Solar-Type Stars

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As part of a program to search for and characterize the presence of warm dust in the habitable zones around nearby solar like stars, we have observed 146 FGKM stars with the Spitzer short-low and long-low IRS modules, and present our preliminary survey findings. The IRS observations are capable of detecting excesses as small as 2% of the photosphere within the range of IRS wavelengths, 7 through 34 um. Out of the 146 stars observed, 15 show significant excess emission longward of 25 um. Out of these 15 detections, one star (HD 10647) has a known planet, and 3 of the 15 stars with IRS excesses are younger than 2 Gyr. Eight stars with IRS excess also have MIPS 70 um excesses (from either the FGK or SIM/TPF surveys). Additionally, eight stars out of the entire sample of 146 stars have MIPS 70 excesses but have no IRS excess. On average, the stars' metallicities are lower than solar. The observed dust luminosities for these 15 stars range from Ldust/L* ~ 1e-5 to 1e-4.